

## **REMARKS / ARGUMENTS**

### **Introduction**

The present Amendment is in response to the Office Action mailed April 6, 2005. Claims 32-37, 38, 44, 46, and 53 are amended. Claims 32-53 remain pending in view of the above amendments.

Please note that the following remarks are not intended to be an exhaustive enumeration of the distinctions between any cited references and the claimed invention. Rather, the distinctions identified and discussed below are presented solely by way of example to illustrate some of the differences between the claimed invention and the cited references. In addition, Applicants request that the Examiner carefully review any references discussed below to ensure that Applicants understanding and discussion of the references, if any, is consistent with the Examiner's understanding. Reconsideration of the application is respectfully requested in view of the above amendments to the claims and the following remarks. For the Examiner's convenience and reference, Applicant's remarks are presented in the order in which the corresponding issues were raised in the Office Action.

### **Consideration of Previously Submitted IDS**

Initially, applicant notes that an Information Disclosure Statement was filed by the applicant in the present application on September 15, 2003 and received by the Patent Office on September 22, 2003. A Supplemental Information Disclosure Statement was filed on February 5, 2004 and was received by the Patent Office on February 9, 2004. The present Office Action, however, fails to acknowledge receipt of the Information Disclosure Statements or return an initialed copy of the corresponding Form PTO-1449. The Office Action may have been issued prior to the Information Disclosure Statement being matched with the file. In any event, enclosed please find a duplicate copy of the Form PTO-1449 submitted with the Information Disclosure Statements. Applicant respectfully requests that the Examiner acknowledge receipt and consideration of the references by initialing and returning a copy of the Form PTO-1449. The Examiner is respectfully requested to contact the applicant if an additional copy of the references is required.

### **Objections to the Specification**

The Office Action objected to the abstract of the disclosure because it is longer than 150 words. The abstract has been amended as required by the Examiner as provided in the Amendments to the Specification section of this response.

### **Objections to the Claims**

The Office Action objected to claims 32, 33, 38, and 46 in that "insulting" should be "insulating". The claims have been amended as suggested by the Examiner to overcome the objection.

### **Rejections Under 35 U.S.C. § 102**

The Office Action rejected claims 32 and 34-53 under 35 U.S.C. § 102(b) as being anticipated by *Cox* (United States Patent No. 5,812,581). Anticipation requires that "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, (Fed. Cir. 1987). The following discussion illustrates that *Cox* does not satisfy *Verdegaal* with respect to claims 32, and 34-53. More particularly, because *Cox* does not teach or suggest each and every limitation of the claims 32 and 34-53 as set forth in those claims, *Cox* does not anticipate any of the claims 32 and 34-53.

In particular, the Office Action references Figure 6 and the discussion thereof of *Cox* as teaching the rejected claims. *Cox*, however, is primarily directed to solving the problem of producing a laser and a photodetector in a common container such that the photodetector can monitor light emitted from the laser and reflected by a window of the container. *See* col. 4, lines 56-60.

*Cox* discloses a gain guide implant that functions to guide current through the center of the laser. *See* col. 8, lines 2-4. Regarding the structure of the laser, *Cox* teaches that the device of Figure 6 includes a top mirror TM, and active layer A and a bottom mirror BM. *See* col. 8, lines 5-9. There is no discussion in *Cox* regarding a specific structure of the top mirror other than to state that a mirror typically comprises a plurality of individual layers of the appropriate thickness and material composition to result in the desired amount of reflectance and

transmissiveness necessary to produce a vertical cavity surface emitting laser. *See* col. 6, lines 40-46.

Claim 32 as amended, however, has several requirements that are not taught or suggested by *Cox*. For example, claim 32 requires that the second DBR mirror have a first DBR mirror layer and a second DBR mirror layer. The second DBR layer has an insulating layer that defines an aperture formed therein and the second DBR layer also has a doping level that is higher than a doping level of the first DBR mirror layer. The requirement of having a second DBR mirror with different DBR layers (which may each includes mirror pairs) is not taught or suggested by *Cox*.

Claim 46 similarly requires providing a first DBR layer in an upper mirror and a second DBR layer in the upper mirror. Claim 46 further requires that the second DBR layer have a doping level that is different from a doping level of the first DBR layer. As discussed above, these requirements of claim 46 are not taught or suggested by *Cox*.

Claim 38 as amended requires that one or more heat conduction layers between the first and second mirror. Claim 38 further requires at least one of the conduction layers to be periodically doped to maximize doping at minima of electric fields. This requirement is not taught or suggested by *Cox* and the requirements of anticipation are therefore not satisfied.

For at least these reasons, claims 32, 38, and 46 overcome the art of record and are in condition for allowance. The dependent claims 34-37, 39-45, and 47-53 overcome the cited art for at least the same reasons.

### **Rejections under 35 U.S.C. § 103**

Claim 33 was rejected as being unpatentable over *Cox* in view of *Choquette* (U.S. Patent No. 5,493,577). Because claim 33 depends from claim 32, which overcomes the cited art for at least the reasons discussed above, claim 33 also overcomes the cited art and is in condition for allowance.

**Conclusion**

In view of the foregoing, Applicants believe the claims as amended are in allowable form. In the event that the Examiner finds remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, or which may be overcome by an Examiner's Amendment, the Examiner is requested to contact the undersigned attorney.

Dated this 5<sup>th</sup> day of October 2005.

Respectfully submitted,



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